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It is well known that two major complications are manifested after any solid organ transplantation: rejection crisis due to immune conflict and infectious processes due to various agents (bacterial, viral, fungal). The question of exact and precise differentiation leads to adequate therapeutic decisions, because the proper immunosuppression would tend to preserve the rejected organ, but from the other hand, would interfere with the infection, if clinically manifested. The prediction of any of both complications gives a chance to overcome the clinical problem before its full development. Our model of a dynamic immunologic monitoring allows a precise differentiation and prognosis of the forthcoming complications after renal allotransplantation. The individuals studied are 54 recipients of renal allografts plus a control group of 24 hemodialysis patients, altogether 78. The methods included in this study are immunologic and microbiologic. The immunologic monitoring (T-helper and T-suppressor test and ratio-index; RBT; macrophage activity NBT-test, enzymatic activity SDH, alpha-GPDH, LDH; CIC; complement C3; NK-cell activity; warm and cold anti-T and anti-B antibodies; thin-needle aspiration biopsy morphologic analysis) is dynamically performed before and after transplantation and is applied very successfully for differentiation and prediction of both, rejection and infections (see our previous studies). The microbiologic analysis includes both, bacterial and viral, examinations to find out the actual cause of the infectious process. It is established that the following bacteria could be etiologic factors postoperatively: *E. coli*, *Enterobacter, S. aureus, S. epidermidis, Pseudomonas, Proteus, Klebsiella, E. faecalis,* and *Acinetobacter*. As the bacterial origin of the infections is not our aim in this study, we neglect those agents: 65% of all post-transplantation infections. The virology analysis shows that 32% of all infections postoperatively are with viral origin: CMV, Hep. B and Hep. C virus, influenza virus, HIV. The other 3% of the infections are from fungal origin (also out of our research plans at the moment). The results show that 21 cases (32%) are with viral infections: CMV – 8 (38%), HepB – 4 (19%), HepC –3 (14%), Influenza – 5 (24%), HIV – 1 (5%), but 4 cases have a mixed infection: CMV+Influenza (2), CMV+Hep+HIV (1), Influenza+Hep (1). The duration of the viral complications is 1.5 times longer than the bacterial ones. Two of the recipients with viral infections have a lethal issue: 1 with HIV (mixed with CMV+Hep) and 1 with CMV (mixed with Influenza). Over 80% of all viral complications are clinically manifested in patients treated with cyclosporine and under 20% are in recipients without current cyclosporine therapy. The hemodialysis patients (24) show a prevalence of Hep-infections and 2/3 of the cases are HepC. The immunologic monitoring definitely helps to predict and differentiate the immune conflict and rejection, as one of the two major complications after renal allotransplantation, and the infection, as a second one. From the other hand, the viral processes and the manifested immunodefficiency, alone or in combination, require a thorough analysis, exact diagnosis and individual therapeutic scheme.

Early measles vaccination in bone marrow transplant (BMT) recipients

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Measles vaccination has been recommended after the second year following BMT, for patients not receiving immunosuppression. During a measles outbreak that irrupted in the city of São Paulo in 1997, we started measles vaccination for all patients after the first year of transplantation and conducted a prospective trial to evaluate the safety, effectiveness and sustained immunity after early measles vaccination. Patients received attenuated virus measles vaccination on day +365. Measles antibodies were detected by ELISA in serum samples taken on months 0, 2, 6, 12 and 24 after vaccination. Thirty seven BMT recipients (5 ABMT; 32 ALO) were evaluated. No severe or moderate adverse reactions was noted. Nine patients (24.3%) were susceptible (IgG ≥100 mUI/mL) at vaccination and all of them seroconverted. In patients considered immune at vaccination, a four fold rise in IgG titers was observed in only one of 24 patients (4.1%) with IgG ≥200 mUI/mL as compared to three of 4 patients (75%) with 100<IgG<200 mUI/mL ($p=0.0012$), supporting that higher titers avoid wild or vaccine virus replication. Survival analysis showed a 96.4%, 86% and 60.2% probabilities of sustained measles immunity at 12, 18 and 24 months after early measles vaccination, respectively. Patients with IgG titers between 200 and 500 mUI/mL at vaccination were less likely to retain measles immunity 12 months after vacciantion as compared to those with IgG titers ≥500 mUI/mL ($p=0.01$). The former patients should be screened more frequently for measles antibodies during follow-up. We concluded that measles vaccination on day +365 is safe and effective in BMT recipients and can be recommended in countries that did not achieved measles elimination. Booster doses of measles vaccine should be recommended only in patients with IgG titers <200mUI/mL.

Infectious morbidity after non myeloablative allogeneic hematopoietic stem cell transplantation (AHSCT)

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